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09/873,014	06/01/2001	Theodore W. Nye	TRW(AP)5576	3227

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EXAMINER

ENGLISH, PETER C

ART UNIT	PAPER NUMBER
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3616

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/873,014

Applicant(s)

NYE ET AL.

Examiner

Peter C. English

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2003 and 16 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-9, 15, 17, 22 and 24-30 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 10-14, 16, 18-21, 23 and 31-36 is/are rejected.
- 7) ☒ Claim(s) 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The proposed drawing corrections filed on 16 January 2004 and 02 January 2003 have been approved. Corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. Claims 31 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 31 contains new matter because the original disclosure does not support the recitation of a force of "at least" 562 pounds. Instead, the original disclosure describes a force of "up to" 562 pounds. See page 37, lines 1-5. The examiner suggests: in claim 31, at line 2, change "at least" to "up to".

Claim 36 contains new matter because the original disclosure does not describe the spool as a "one-piece structure". No mention is made of a "one-piece structure" in the original specification. Further, original Fig. 2 shows that the spool is an integral structure, but does not necessarily show that the structure is one piece.

3. Claims 18-21, 23, 34 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 18, at lines 3-4, the introduction of "a gear assembly" renders the claim indefinite because it is unclear what the relationship is between the gear assembly of claim 17 (line 16) and the gear assembly of claim 18. The examiner suggests: in claim 18, delete lines 3-4 in their entirety.

In claim 19, at line 14, the term "the back portion" lacks proper antecedent basis. The examiner suggests that this be changed to "a back portion".

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In claim 34, at lines 5 and 6, and in claim 35, at line 3, the term "the support wall" is indefinite because more than one support wall has been previously introduced (see claim 33, line 2). The examiner suggests that each occurrence of "the support wall" be changed to "the one support wall".

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 10, 12, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Maekawa et al. (US 5,765,774). Maekawa et al. discloses a seat belt system comprising: a seat belt 9 wound on a retractor 20; a reversible electric motor 10 that drives a spool 2 of the retractor 20; a controller 61 for controlling the motor 10; an obstacle sensor 66; and a skid sensor 67. When the sensors 66 and 67 do not produce an impending crash signal or a crash signal, the controller 61 operates the motor 10 to extend and retract the seat belt 9. This first mode of operation is illustrated in Fig. 4A from point "a" to point "l", and is described at column 4, line 6 to column 5, line 10. In response to an impending crash signal from the sensor 66 or 67, the controller 61 operates the motor 10 to pretension the seat belt 9 by a first amount. This second mode of operation is illustrated in Figs. 4A and 4B from point "l" to point "p" and again from point "u" to point "w", and is described at column 5, lines 11-24 and 33-38. In response to a crash signal from the sensor 67 or 66, the controller 61 operates the motor 10 to pretension the seat belt 9 by a second greater amount. This third mode of operation is illustrated in Fig. 4B from point "w" to point "x", and is described at column 5, line 38-46. The motor 10 is considered to be an "electric" motor because it is driven by a piezoelectric array 11 (see column 3, lines 4-17), and is actuated by electrical signals from the controller 61.

6. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Behr (US 5,558,370). Behr discloses a seat belt system comprising: a seat belt retractor 14; an electric motor 12 that drives a spool of the retractor 14; a controller 20 for controlling the motor 12; an obstacle

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sensor 26; and a crash sensor 22. When the sensor 26 does not produce an impending crash signal and the sensor 22 does not produce a crash signal, the controller 20 operates the motor 12 to retract the seat belt (see column 3, line 44 to column 4, line 47). In response to an impending crash signal from the sensor 26, the controller 20 operates the motor 12 to pretension the seat belt by a first amount (see Steps 310 and 216 in Fig. 4; column 5, line 59 to column 6, line 15). In response to a crash signal from the sensor 22, the controller 20 operates the motor 12 to pretension the seat belt by a second greater amount (see Steps 222 and 224 in Fig. 4; column 5, lines 9-21). The motor 12 is considered to be "electric" because it is described as a step motor (see column 3, line 1) that is activated or pulsed at a given power level (see column 4, line 8), and because it is actuated by electrical signals from the controller 20.

7. Claims 32-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Sawato (JP 10-167003). Sawato discloses a seat belt system comprising a seat belt retractor 10 having a spool 20 on which is wound a seat belt webbing 18. The spool 20 has an axle and support walls (see Figs. 3 and 5). The webbing 18 is received between the support walls (see Figs. 4 and 5). A gear 203 is formed integrally on the outside surface of one of the support walls (see Figs. 3 and 5). The gear 203 is driven by gears 201, 202, which in turn are driven by an electric pretensioning motor 224. The motor 224 is activated by a controller 120 in response to signals from sensors 122, 124.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1, 2, 10-14, 16 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frantom et al. (US 4,655,312) in view of Maekawa et al. (US 5,765,774) and Behr (US 5,558,370). Frantom et al. discloses a seat belt system comprising: a seat belt 10 wound on a retractor 14; a reversible electric motor 42 that drives a spool 282 of the retractor 14 via a gear assembly 284, 286; a controller 28 for controlling the motor 42; and a crash sensor 32 that supplies a crash signal to the controller 28. When no crash signal is produced by the sensor 32, the controller 28 operates the motor 42 to extend and retract the seat belt 10 (see column 5, lines 17-68). In response to a crash signal from the sensor 32, the controller 28 operates the motor 42 to pretension the seat belt 10 (see column 6, lines 1-9). For pretensioning the motor 42 is operated at a higher power level for a brief period (see column 5, lines 4-14).

Frantom et al. fails to disclose the degree to which the seat belt is pretensioned. As a result, Frantom et al. fails to disclose generating a pretensioning force sufficient to pull an occupant backward. As has already been discussed in detail above, Maekawa et al. and Behr both teach pretensioning a seat belt with a force sufficient to pull an occupant backward. From this teaching of Maekawa et al. and Behr, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Frantom et al. by generating a pretensioning force sufficient to pull an occupant backward in order to properly position the occupant in his/her seat, thereby maximizing the protection provided by the seat belt as well as properly positioning the occupant for protection by supplemental restraint devices (e.g., air bags).

Frantom et al. also fails to disclose pretensioning the seat belt by an intermediate amount in response to an impending crash signal from an impending crash sensor. As has already been discussed in detail above, Maekawa et al. and Behr both teach pretensioning a seat belt by an intermediate amount in response to an impending crash signal from an impending crash sensor. From this teaching of Maekawa et al. and Behr, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Frantom et al. by

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pretensioning the seat belt by an intermediate amount in response to an impending crash signal from an impending crash sensor in order to properly position the occupant in his/her seat in advance of a collision, thereby maximizing the protection provided by supplemental restraint devices (e.g., air bags).

With respect to claim 31, it would have been obvious to use a pretensioning force of 562 pounds in order to insure that the seat belt will be pretensioned (i.e., to insure that the pretensioning force is strong enough to overcome the forces acting upon the occupant during a crash). Further, the selection of an optimum value, given prior art general conditions, is considered to be within the level of ordinary skill in the art.

11. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. (US 5,765,774). Maekawa et al. (discussed above) lacks a pretensioning force of 562 pounds. It would have been obvious to use a pretensioning force of 562 pounds in order to insure that the seat belt will be pretensioned (i.e., to insure that the pretensioning force is strong enough to overcome the forces acting upon the occupant during a crash). Further, the selection of an optimum value, given prior art general conditions, is considered to be within the level of ordinary skill in the art.

Response to Arguments

12. Applicant's arguments with respect to new claims 31-36 are moot in view of the new grounds of rejection.

13. Applicant's arguments with respect to claims 1 and 16 are not persuasive. Applicant argues that Maekawa et al. and Behr fail to teach motors that pull an occupant backwards. The examiner disagrees. See the explanation of the teachings of these references in items 5 and 6 above.

Allowable Subject Matter

14. Claims 3-9, 15 and 17, 22 and 24-30 are allowed.

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15. Claims 18-21 and 23 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

16. Claim 37 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).


Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter C. English whose telephone number is 703-308-1377. The examiner can normally be reached on Monday through Thursday (7:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul N. Dickson can be reached on 703-308-2089. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.


Peter C. English 2/9/04
Primary Examiner
Art Unit 3616

pe
9 February 2004